REMARKS

Initially, Applicant would like to thank the Examiner for withdrawing the finality of the previous Office Action.

Claims 1-18 were previously pending in the application. New claims 19 and 20 are added. Therefore, claims 1-20 are presented for consideration.

Claims 1-6 and 8-18 are rejected as unpatentable over NISHIGUCHI 5,214,308 in view of ROSTOKER 5,767,580.

Reconsideration and withdrawal of the rejection are respectfully requested because the references do not teach or suggest the carrier substrate having a recess in a central area of a surface thereof and a soldering land of the electrode structure arranged in the recess and contacting an entirety of the surface defining the recess except for a passage therethrough as recited in claim 1 of the present application.

By way of example, Figure 1C of the present application shows a carrier substrate 2 having a recess in a central area of a surface thereof. A soldering land 103 of the electrode structure is arranged in the recess and contacts an entirety of the surface defining the recess except for passage 104 therethrough. Specifically the soldering land has side walls and a bottom such that the soldering land covers the walls and the bottom of the recess. The hemispherical shape of the embodiment

of Figure 1C is only interrupted by slit 104 through the circumferential wall.

The Official Action notes that NISHIGUCHI et al. do not disclose or suggest a slit or passage in the circumferential wall or flange. To attempt to overcome this shortcoming, NISHIGUCHI et al. is combined with ROSTOKER. ROSTOKER in Figure 7A, for example, shows a passage or slit 740A through a land 710A.

MPEP §2143.01 states that "although a prior device 'may be capable of being modified to run the way the apparatus is claimed there must be a suggestion or motivation in the reference to do so.' 916 F.2d at 682, 16 USPQ 2d at 1432."

Absent impermissible hindsight reasoning, combining NISHIGUCHI et al. and ROSTOKER would result in a soldering land having a hole in the center as shown by reference numeral 715A in ROSTOKER. The Official Action cannot pick and choose certain elements from a first reference and certain elements from a second reference without using the complete teachings of each reference.

ROSTOKER teaches away from a bonding pad having a solid shape as shown in Figure 1B of ROSTOKER. ROSTOKER requires a central void or opening in the bonding pad in order to form a detent. Therefore, any teaching using ROSTOKER as a reference would also require the essential void portion and thus combining

ROSTOKER with NISHIGUCHI et al. would not result in a soldering land of the electrode structure arranged in a recess and contacting an entirety of the surface defining the recess as in claim 1 of the present application.

In addition, the Official Action has offered the motivation for combining the references as "for releasing trapped gas during assembly and to eliminate bump distortion". However, NISHIGUCHI et al. does not recognize a problem of trapped gases. Specifically as seen in Figure 3 of NISHIGUCHI et al. an object of NISHIGUCHI et al. is to align bumps 2 within recess 4. As disclosed on column 4, lines 64-66 of NISHIGUCHI et al., the recess 4 is large enough to receive at least a top (bottom in the drawing) of the bump 2 formed on the semiconductor device 1. This allows the precision of a positioning machine to have increased tolerances so that the positional error after packaging can decrease or at least remain the same as the prior art positioning machine having much tighter tolerances.

Gas would only be trapped during assembly if there was no space between the walls of the recess and the bump. As set forth above, this is not shown in Figure 3 of NISHIGUCHI et al.

MPEP 2143.01 states that if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the

teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Requiring a larger bump so that gas is trapped during assembly would change the principal of operation of NISHIGUCHI et al. Accordingly, there is no motivation to make the proposed modification.

Further, the bonding pads of ROSTOKER are formed above substrate 505 as seen in Figure 5, for example. Further clarification of why one of ordinary skill in the art would combine the teachings of a bonding pad that is formed above a substrate and a bonding pad that is formed in a recess (as taught by NISHIGUCHI et al.) is respectfully requested.

MPEP §2141.02 states that in determining the differences between the prior art and claims, the question under 35 USC §103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Strattleflex, Inc. v. Arrow Quick Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983).

As set forth above, a rejection cannot be made by picking and choosing certain aspects of one reference and combining them with other aspects of another invention without looking at each of the references as a whole and what the

combined teachings would be. Such examination uses impermissible hindsight reasoning. The combination of references proposed in the Official Action would not render obvious claim 1 of the present invention based on the teachings of the references. Only using impermissible hindsight reasoning based on what was gleaned from reading the present specification could one of ordinary skill in the art possibly make the present invention. Accordingly, reconsideration and allowance of claim 1 are respectfully requested.

Claims 2-7 depend from claim 1 and further define the invention and are also believed patentable over the cited prior art.

Claim 8 also provides a carrier substrate having a recess disposed on a surface thereof and a soldering land disposed in the recess and contacting an entirety of the surface defining the recess except for at least one slit. The comments above regarding claim 8 are equally applicable to claim 1. Claims 9-11 depend from claim 8 and further define the invention and are also believed patentable over the combination of references.

Claim 12 provides a cup-shaped soldering land disposed in the recess. A cup-shaped soldering land would necessarily have a bottom. As set forth above regarding claim 1, ROSTOKER

requires a void in the bonding pad and thus would not have a bottom. The comments above regarding claim 1 are equally applicable to claim 12. Claims 13-15 depend from claim 12 and further define the invention and are also believed patentable over the cited prior art.

Claim 16 also provides a recess formed in a central area of the electrode structure and a circumferential wall covering walls and a bottom of the recess of the central area and entirely within the recess. The comments above regarding claim 1 are equally applicable to claim 16. Claims 17 and 18 depend from claim 16 and further define the invention and are also believed patentable over the cited prior art.

Claim 7 is rejected as unpatentable over NISHIGUCHI et al. and ROSTOKER and further in view of LAU (Chip Scale Package). This rejection is respectfully reversed.

LAU is only cited for the teaching of a Chip Scale Package. LAU does not teach or suggest what is recited in claim 1. As set forth above, NISHIGUCHI et al. in view of ROSTOKER does not teach or suggest what is recited in claim 1. Since claim 7 depends from claim 1 and further defines the invention, the combination of references would not render obvious claim 7.

New claim 19 provides that solder land is structured and arranged so that the solder ball of a main substrate contacts

an entirety of the solder land when the carrier substrate is connected to the main substrate. New claim 20 provides that a bottom of the cap-shaped soldering land is an interrupted surface. Support for new claims 19 and 20 can be found in Figure 2 and on page 7, lines 13-24, for example.

As seen in Figure 7D of ROSTOKER, the solder ball 750 rests on conductive sidewall structure 720 and does not go inside the sidewalls. Specifically column 12, lines 17-20 of ROSTOKER disclose that the conductive bump 750 rests atop contact structure 720 intruding partially (nesting) into the well 734 therewithin. Figures 6 and 7 of NISHIGUCHI et al. show solder bumps 2A before and after packaging. As seen in Figure 7, after packaging, solder bump 2A does not contact an entirety of the soldering land as recited in claim 19 of the present application when the carrier substrate is connected to the main substrate.

Regarding claim 20, ROSTOKER teaches the need to have a void in the center and thus any teaching that includes ROSTOKER would necessarily have to have a void which is not a bottom with an interrupted surface.

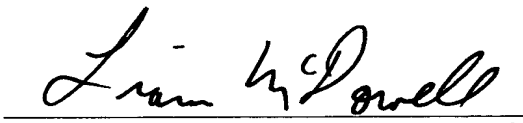
Accordingly, it is believed that the new claims avoid the rejection under §103 and are allowable over the art of record.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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